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CASE REPORT

Adenosquamous carcinoma of the colon

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Abstract Adenocarcinoma accounts for most of the malignant tumors originating from the colon, whereas adenosquamous carcinoma is rare, accounting for less than 0.1% of all colorectal cancer. Herein, we present a case of adenosquamous carcinoma of the transverse colon. A 52-year-old male patient presented with a chief complaint of intermittent upper abdominal fullness and dull pain for 10 months. Colonoscopy showed a mass with obstruction at 40 cm from the anal verge and abdominal computed tomography scan showed a huge mass in the distal transverse colon with adjacent tissue invasion. A pathologic report demonstrated adenosquamous carcinoma and extended left hemicolectomy was performed as a International Union Against Cancer (UICC) Stage III advanced colon cancer with adenosquamous carcinoma histology. Postoperative recovery was uneventful and adjuvant chemotherapy was administered. We have reviewed the literature with regard to the clinical presentation, management, and prognosis of this tumor.

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Introduction

Colorectal cancer is the most common cancer in Taiwan. Most of these tumors, however, are adenocarcinoma.[1] Tumors with adenosquamous carcinoma (ASC) are rare and evoke much interest with regard to the mechanisms of histogenesis, pattern of spread, and prognosis. There have been few reports of ASC of the lower gastrointestinal tract since its original description in 1907.[2] ASC of the colon and rectum is extremely rare and represents 0.025—0.1% of all colorectal malignancies.[3] We report a case of ASC of the colon and review the literature in relation to the presentation, natural history, management, and prognosis of this disease entity.

Case report

A 52-year-old male patient presented with a 10-month history of intermittent upper abdominal fullness and pain, poor appetite, and weight loss (10 kg over 10 months). There was no family history of colorectal cancer. Colonoscopy revealed a large circumferential mass at the transverse colon near the splenic flexure. Biopsy was suggestive of a malignant epithelial tumor with histologic features of squamous epithelial differentiation. This pathologic finding was consistent with a primary colonic neoplasm or a secondary deposit from a primary lesion elsewhere. The serum carcinoembryonic antigen level was normal (0.67 ng/mL; normal, $<$ 5.0 ng/mL) and a computed tomography scan of the abdomen did not reveal any other lesions except colon cancer in the distal transverse colon with adjacent tissue invasion (Fig. 1). Laparotomy showed that the patient had a mass at the splenic flexure of the transverse colon with adherence of the adjacent small intestine. An extended left hemicolectomy was performed. Histology of the lesion showed a tumor of biphasic morphology with malignant bands (adenocarcinoma, glandular components) and solid sheets of malignant squamous cells (Fig. 2A). Furthermore, dyskeratotic cells were present in the squamous components (Fig. 2B), indicating squamous cell carcinoma. The appearance of this tumor was annular, ulcerated, and showed invasion of the serosa. The histologic grade was poorly differentiated and the resected small intestine was negative for malignancy. Metastatic disease was noted in two of 36 lymph nodes that were involved with metastatic squamous cell carcinoma. The patient had an uneventful postoperative recovery, and adjuvant chemotherapy was administered. Unfortunately, 15 months after surgery, computed tomography of the abdomen revealed recurrent tumor with carcinomatosis and the patient expired 3 months later.

Discussion

Because of the rarity of ASC, it is a challenge to understand the biology of this disease. A review of the National Cancer Institute's (NCI) Surveillance, Epidemiology and End Results Database CD-Rom shows 145 cases of ASC of the colon, rectum, and anus. Among these cases, 84 (58%) occurred in the sigmoid-rectum-anus, 19 (13%) in the transverse-descending colon, and 41 (28%) in the ascending colon and cecum.[4] In 2008, Yokoi et al[5] demonstrated that the most common locations of ASC were the cecum and ascending colon, with a significant difference in location in comparison with that of conventional colorectal adenocarcinoma.

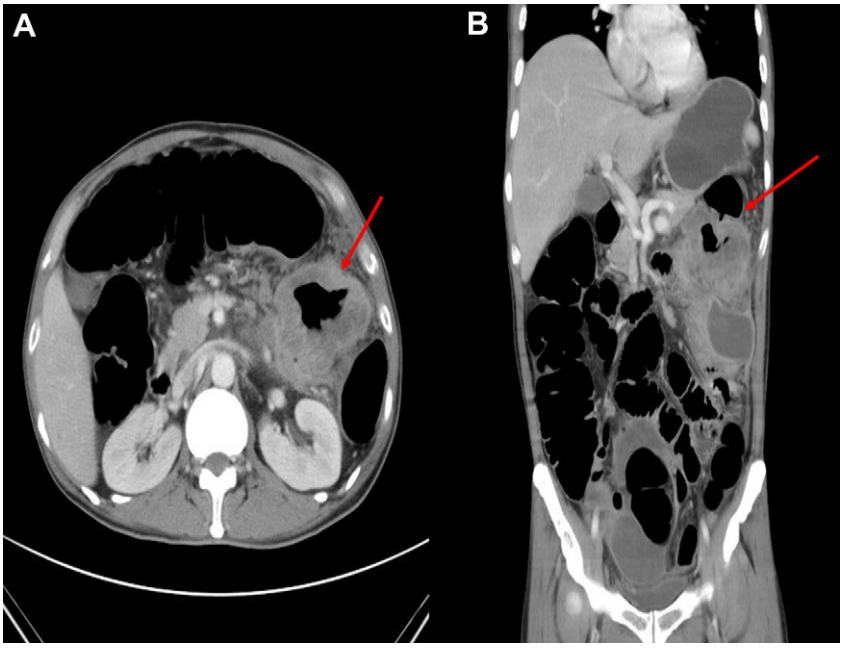

Figure 1 A mass with adjacent tissue invasion at the distal transverse colon was found in a computed tomography (CT) scan of the abdomen. (A) Lesion shown by sagittal view of the abdominal CT scan (arrow). (B) Lesion shown by coronal view of abdominal CT scan (arrow).

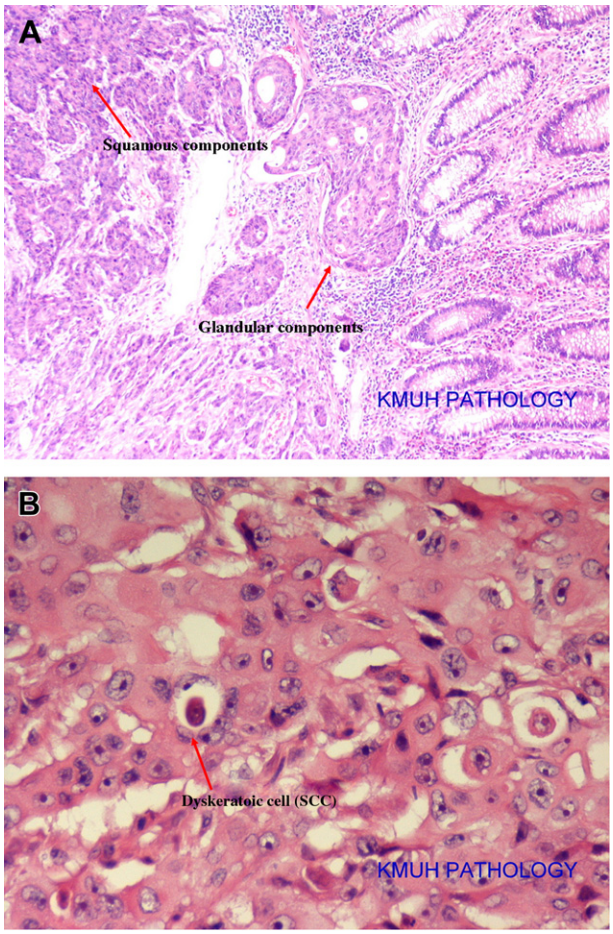

Figure 2 Pathologic findings. (A) The tumor revealed features of both squamous components (left arrow) and glandular components (right arrow). Hematoxylin and eosin stain, 100×. (B) Dyskeratotic cells were found in the squamous components (arrow). Hematoxylin and eosin stain, 200×.

The histogenesis of ASC remains unclear, but four hypotheses have been proposed: (1) ectopic squamous cells; (2) the transformation of uncommitted basal cells into squamous cells; (3) squamous metaplasia of glandular epithelium; and (4) squamous metaplasia of adenocarcinoma cells. The fourth hypothesis, that squamous metaplasia occurs during the process of conventional colon adenocarcinoma development, is generally accepted because ASC of the colon consists of both carcinoma types and a transitional area.[5,6]

The clinical presentation and gross pathologic morphology of ASC are similar to that of adenocarcinoma in general, and the diagnosis is made by histologic confirmation.[7,8] In this case, the tumor showed not only features of both adenocarcinoma and squamous carcinoma, but also components of squamous carcinoma with more than occasional small foci. Therefore, the pathologic diagnosis was ASC according to the World Health Organization classification of tumors of the digestive system.[9] According to a review of the literature, the characteristics of ASC are as follows: (1) it may present with the paraneoplastic syndrome of hypercalcemia; (2) it may be more aggressive and have a worse prognosis for comparison with the same staged adenocarcinoma; (3) the squamous cell component has been reported to have a greater metastatic potential than the glandular cell component; (4) most patients have regional (30%) or distant (40%) metastasis at the time of diagnosis; and (5) there are some factors that could predict poor prognosis, including right-sided lesions, ulcerated or annular carcinoma, node-positive disease, Grade 3 or 4 cancer, and Stage IV disease.[3,10] In our case, we found that the patient had three of the five previously mentioned characteristics.

Treatment consists of surgical resection of the tumor. Although adjuvant chemotherapy has been used, the exact role of this modality is not definitely known because of the rarity of this tumor. Because adenomatous and squamous components are malignant, the prognosis of these tumors has been the subject of much speculation.[7] Initial reports suggested a dismal prognosis for all stages of these tumors compared with adenocarcinoma alone.[10] A subsequent study confirmed the overall worse prognosis for patients with ASC and suggested that although patients with both types of tumors with early stages of disease behave similarly, the presence of metastases worsens the prognosis for similarly staged patients with ASC.[7]

The 5-year survival rate has been reported to be 30–47.2%.[4,5] Moreover, Cagir et al[4] showed that patients with Dukes Stages A and B1 ASC had survival rates comparable with those of similarly staged patients with adenocarcinoma. However, patients with Dukes Stages B2, C, and D had a significantly lower survival compared with similarly staged patients with adenocarcinoma. Recently, Benedix et al[11] demonstrated that local extensive and metastatic disease accounted for the poor prognosis in colorectal ASC.

In conclusion, ASC of the colon is rare and has boththe features of adenocarcinoma and squamous carcinoma. Although it is associated with a worse prognosis than adenocarcinoma alone, early detection and radical surgical resection remain the treatment of choice.

References

1. Department of Health, Executive Yuan, Taiwan, ROC, 2010.
2. Herxheimer G. Uber heterology cancroids. *Beitr. Pathol. Anat.* 1907;41:348.
3. Kiran RP, Tripodi G, Frederick W, et al. Adenosquamous carcinoma of the colon: a rare tumor. *Am. Surg.* 2006;72:754–755.
4. Cagir B, Nagy MW, Topham A, et al. Adenosquamous carcinoma of the colon, rectum, and anus: epidemiology, distribution, and survival characteristics. *Dis. Colon. Rectum.* 1999;42:258–263.
5. Yokoi K, Tanaka N, Furukawa K, et al. Case of adenosquamous carcinoma of the ascending colon. *J. Nippon. Med. Sch.* 2008;75:242–246.
6. Schneider TA, Birkett DH, Vernava AM. Primary adenosquamous and squamous cell carcinoma of the colon and rectum. *Int. J. Colorectal. Dis.* 1992;7:144–147.
7. Frizelle FA, Hobday KS, Batts KP, et al. Adenosquamous and squamous carcinoma of the colon and upper rectum: a clinical and histopathologic study. *Dis. Colon. Rectum.* 2001;44:341–346.
8. Juturi JV, Francis B, Koontz PW, et al. Review. Squamous-cell carcinoma of the colon responsive to combination chemotherapy: report of two cases and review of the literature. *Dis Colon Rectum.* 1999;42:102–109.

9. Flejou JF. WHO Classification of digestive tumors: the fourth edition. *Ann. Pathol*. 2011;31(5 Suppl):S27—S31.
10. Dong Y, Wang J, Ma H, et al. Primary adenosquamous carcinoma of the colon: report of five cases. *Surg. Today*. 2009;39: 619—623.
11. Benedix F, Reimer A, Gastinger I, et al. Study Group Colon/-Rectum Carcinoma Primary Tumor. Primary appendiceal carcinoma-epidemiology, surgery and survival: results of a German multi-center study. *Dis. Colon. Rectum*. 2010;36: 763—771.